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09/847,256	05/02/2001	Joshua Bers	00-4037	6908

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EXAMINER
GAUTHIER, GERALD

ART UNIT	PAPER NUMBER
2645	

DATE MAILED: 05/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>05 February 2004</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-15,21 and 22* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *16-18,20 and 23* is/are allowed.

6)☒ Claim(s) *1-15, 21 and 22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Allowable Subject Matter

1.   The following is a statement of reasons for the indication of allowable subject

matter:

regarding **claims 16-18, 20 and 23**, they contained allowable subject matter

such as "generating a feature vector that contains the number of times the at least one

word stems and word classes were found in the determined phrases, performing

analysis on the feature vector outputting a posterior possibilities vector, inputting the

posterior possibilities vector and determining the expected benefit of routing the call to

each of a predetermined destination and outputting a benefit sorted vector of

destinations , benefits and topic scores.

Claim Rejections - 35 USC § 103

2.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

3.   This application currently names joint inventors. In considering patentability of

the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of

the various claims was commonly owned at the time any inventions covered therein

were made absent any evidence to the contrary. Applicant is advised of the obligation

under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was

not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g)

prior art under 35 U.S.C. 103(a).

4.   **Claims 1-3, 6, 8, 14-15 and 21-22** are rejected under 35 U.S.C. 103(a) as being

unpatentable over Lim et al. (6,477,240) in view of Fisher et al. (6,347,139).

Regarding **claim 1**, Lim discloses a computer-implemented voice-based

command structure for establishing outbound communication trough a unified

messaging system (column 1, lines 52-61), (which reads on claimed "an automated call

routing system that routes a telephone call by responding to a routing objective of a

calling party"), comprising:

a speech recognizer (column 9, line 5 "voice recognition") that determines at

least one phrase (column 9, line 7 "spoken words") from a speech utterance (column 9,

line 7 "human voice") made by the calling party and outputs a digital phrase (column 9,

lines 4-18) [The telephony server includes software to perform voice recognition and

transcribe spoken words of the user to digital data];

a topic identifier (126 on FIG. 1) that receives the digital phrase and converts the

digital phrase to at least one of a word stem (column 9, line 28 "verbal commands") and

a word class (column 9, line 28 "predefined dialing sequences") and generates a topic

output (column 9, lines 19-37) [The telephony employs the digital data to decide how to

handle the communication request].

Lim discloses the telephony server as a router to decide how to handle a call

based on the digital data but fails to disclose a maximum benefit router that receives the

topic output and determines where to route the telephone call in order to optimize at

least one predetermined parameter the telephone call routed based on maximum

benefit.

However, Fisher teaches a maximum benefit router (160 on FIG. 1) that receives

the topic output (column 6, line 42 "the data content") and determines where to route the

telephone call (column 6, line 56 "a call") in order to optimize at least one predetermined

parameter (column 6, line 56 "require a skill x") the telephone call routed based on

maximum benefit (column 6, lines 42-60) [The call selector program performs the agent

selector process when a call is determined to require a skill x and selects the best agent

with skill x to handle the call].

It would have been obvious to one of the ordinary skill in the art at the time the

invention was made to use the call selector program which analyses the data to select

the best agent of Fisher to modify the telephony server of Lim.

The modification of the invention will offer the capability of the call selector

program which analyses the data to select the best agent such as the system would

efficiently and automatically fine tune the allocation of agent resources to the incoming

calls.

Regarding **claim 2**, Fisher teaches wherein the maximum benefit router

separates the routing objective of the calling party according to call topics (column 7,

lines 1-12) [The system dynamically assign the call to agent based on the skill].

Regarding **claim 3**, Fisher teaches wherein the maximum benefit router

separates the routing objective of the calling party from a second objective of a call

center (column 7, lines 1-12) [The system uses both the predicted wait time and the

service objective a service measurements metrics].

Regarding **claim 6**, Fisher teaches wherein the topic identifier generates a topic

likelihood vector that is input to the maximum benefit router (column 5, lines 47-63) [The

system uses a call vector program which assigns incoming calls to different call

queues].

Regarding **claim 8**, Fisher teaches wherein the maximum benefit router routes

the telephone call to a first call center based upon optimized response quality (column

4, lines 25-61) [The system uses the response of the caller to complete the incoming

call].

Regarding **claim 14**, Lim discloses a computer-implemented voice-based

command structure for establishing outbound communication (column 1, lines 52-61),

(which reads on claimed "an automated call routing system that routes a telephone call

by responding to a routing objective of a calling party"), comprising:

a recognizer (column 9, line 5 "voice recognition") that determines at least one

phrase (column 9, line 7 "spoken words") made by the calling party and outputs a

second phrase (column 9, lines 4-18) [The telephony server includes software to perform voice recognition and transcribe spoken words of the user to digital data];

a topic identifier (126 on FIG. 1) that receives the second phrase (column 9, line 24 "send a facsimile") and converts the second phrase to at least one of a word stem (column 9, line 28 "verbal commands") and a word class (column 9, line 28 "predefined dialing sequences") and generates a topic output (column 9, lines 19-37) [The telephony server includes an identifier that decide how to handle the digital data that includes voice-based commands that indicate the communication option settings].

Lim discloses the telephony server as a router to decide how to handle a call based on the digital data but fails to disclose a maximum benefit router that receives the topic output and determines where to route the telephone call in order to optimize at least one predetermined parameter the telephone call routed based on maximum benefit.

However, Fisher teaches a maximum benefit router that receives the topic output and determines where to route the telephone call in order to optimize at least one predetermined parameter the telephone call routed based on maximum benefit (column 6, lines 42-60) [The call selector program performs the agent selector process when a call is determined to require a skill x and selects the best agent with skill x to handle the call].

It would have been obvious to one of the ordinary skill in the art at the time the invention was made to use the call selector program which analyses the data to select the best agent of Fisher to modify the telephony server of Lim.

The modification of the invention will offer the capability of the call selector program which analyses the data to select the best agent such as the system would efficiently and automatically fine tune the allocation of agent resources to the incoming calls.

Regarding **claim 15**, Fisher teaches wherein the call can be one of a telephone call (column 4, lines 63-67).

Regarding **claim 21**, Lim discloses a computer-implemented voice-based command structure for establishing outbound communication (column 1, lines 52-61), (which reads on claimed "a maximum benefit call routing system for use in a call center that routes a telephone call made by a calling party by responding to a routing objective of the calling party"), comprising:

a recognizer (column 9, line 5 "voice recognition") that determines at least one phrase (column 9, line 7 "spoken words") made by the calling party and outputs a digital phrase (column 9, lines 4-18) [The telephony server includes software to perform voice recognition and transcribe spoken words of the user to digital data];

a topic identifier (126 on FIG. 1) that receives the second phrase (column 9, line 24 "send a facsimile") and converts the second phrase to at least one of a word stem (column 9, line 28 "verbal commands") and a word class (column 9, line 28 "predefined dialing sequences") and generates a topic output (column 9, lines 19-37) [The telephony

server includes an identifier that decide how to handle the digital data that includes

voice-based commands that indicate the communication option settings].

Lim discloses the telephony server as a router to decide how to handle a call

based on the digital data but fails to disclose a maximum benefit router that receives the

topic output and determines where to route the telephone call in order to optimize at

least one predetermined parameter the telephone call routed based on maximum

benefit.

However, Fisher teaches a maximum benefit router that receives the topic output

and determines where to route the telephone call in order to optimize at least one

predetermined parameter the telephone call routed based on maximum benefit (column

6, lines 42-60) [The call selector program performs the agent selector process when a

call is determined to require a skill x and selects the best agent with skill x to handle the

call];

wherein the maximum benefit router determines the best routing objective of the

calling party according to call topics (column 6, lines 42-60) [The call selector program

performs the agent selector process when a call is determined to require a skill x and

selects the best agent with skill x to handle the call]; and

wherein the maximum benefit router determines the best routing destination in

the call center based on the routing objective of the calling party distinguished from a

second routing objective of the call center (column 7, lines 1-12) [The call center system

use both service measurement metrics for the assignment of an agent to handle

incoming call only when there is a call surplus condition otherwise performs the agent

selector process when a call is determined to require a skill x and selects the best agent
with skill x to handle the call].

It would have been obvious to one of the ordinary skill in the art at the time the
invention was made to use the call selector program which analyses the data to select
the best agent of Fisher to modify the telephony server of Lim.

The modification of the invention will offer the capability of the call selector
program which analyses the data to select the best agent such as the system would
efficiently and automatically fine tune the allocation of agent resources to the incoming
calls.

Regarding **claim 22**, Lim discloses a computer-implemented voice-based
command structure for establishing outbound communication (column 1, lines 52-61),
(which reads on claimed "an automated call routing system for use in a call center that
routes a call by responding to a routing objective of the calling party"), comprising:

a recognizer (column 9, line 5 "voice recognition") that determines at least one
phrase (column 9, line 7 "spoken words") made by the calling party and outputs a
second phrase (column 9, lines 4-18) [The telephony server includes software to
perform voice recognition and transcribe spoken words of the user to digital data];

a topic identifier (126 on FIG. 1) that receives the second phrase (column 9, line
24 "send a facsimile") and converts the second phrase to at least one of a word stem
(column 9, line 28 "verbal commands") and a word class (column 9, line 28 "predefined
dialing sequences") and generates a topic output (column 9, lines 19-37) [The telephony

server includes an identifier that decide how to handle the digital data that includes

voice-based commands that indicate the communication option settings].

Lim discloses the telephony server as a router to decide how to handle a call

based on the digital data but fails to disclose a maximum benefit router that receives the

topic output and determines where to route the telephone call in order to optimize at

least one predetermined parameter the telephone call routed based on maximum

benefit.

However, Fisher teaches a maximum benefit router that receives the topic output

and determines where to route the telephone call in order to optimize at least one

predetermined parameter the telephone call routed based on maximum benefit (column

6, lines 42-60) [The call selector program performs the agent selector process when a

call is determined to require a skill x and selects the best agent with skill x to handle the

call];

wherein the maximum benefit router determines the best routing objective of the

calling party according to call topics (column 6, lines 42-60) [The call selector program

performs the agent selector process when a call is determined to require a skill x and

selects the best agent with skill x to handle the call]; and

wherein the maximum benefit router determines the best routing destination in

the call center based on the routing objective of the calling party distinguished from a

second routing objective of the call center (column 7, lines 1-12) [The call center system

use both service measurement metrics for the assignment of an agent to handle

incoming call only when there is a call surplus condition otherwise performs the agent

selector process when a call is determined to require a skill x and selects the best agent

with skill x to handle the call].

It would have been obvious to one of the ordinary skill in the art at the time the

invention was made to use the call selector program which analyses the data to select

the best agent of Fisher to modify the telephony server of Lim.

The modification of the invention will offer the capability of the call selector

program which analyses the data to select the best agent such as the system would

efficiently and automatically fine tune the allocation of agent resources to the incoming

calls.

5.   **Claims 4-5 and 7** are rejected under 35 U.S.C. 103(a) as being unpatentable

over Lim in view of Fisher and in further view of Carpenter et al. (US 6,269,153).

Regarding **claim 4**, Lim and Fisher as applied to **claim 1** differ from **claim 4** in

that it fails to disclose wherein the at least one predetermined parameter is selected

from an m x n benefit matrix having m routing destinations and n caller topics.

However, Carpenter teaches wherein the at least one predetermined parameter

is selected from an m x n benefit matrix (column 4, line 43 "an m x n matrix") having m

routing destinations (column 4, line 44 "destinations") and n caller topics (column 4, lines 38-53).

It would have been obvious to one of the ordinary skill in the art at the time the invention was made to use the threshold scoring unit assigns a speaker label to each feature vector of Carpenter to modify the invention of Lim and Fisher.

The modification of the invention will offer the capability of the at least one predetermined parameter is selected from an m x n benefit matrix having m routing destinations and n caller topics such as the system would receive voice inputs from a caller and process inputs directly to route a call.

Regarding **claim 5**, Carpenter teaches a benefit matrix as input to the maximum benefit router, the benefit matrix having at least one routing destination and at least one caller topic (column 4, lines 38-53).

Regarding **claim 7**, Carpenter teaches wherein entries in the benefit matrix define the benefit in seconds of agent time saved by routing the call to a first destination based upon a first caller topic (column 2, lines 56-65).

6.   **Claims 9 and 10** are rejected under 35 U.S.C. 103(a) as being unpatentable over Lim in view of Fisher and in further view of Zhao (US 5,794,192).

Regarding **claim 9**, Lim and Fisher as applied to **claim 1** differ from **claim 9** in that it fails to disclose wherein the maximum benefit router optimizes at least one predetermined parameter using Bayesian decision theory and determining minimum overall risk.

However, Zhao teaches wherein the maximum benefit router optimizes at least one predetermined parameter using Bayesian decision theory (column 5, line 6 "Bayesian estimation") and determining minimum overall risk (column 5, lines 3-14).

It would have been obvious to one of the ordinary skill in the art at the time the invention was made to use the maximum benefit router optimizes at least one predetermined parameter using Bayesian decision theory of Zhao to modify the invention of Lim and Fisher.

The modification of the invention will offer the capability of the maximum benefit router optimizes at least one predetermined parameter using Bayesian decision theory such as the system would handle various sources of speech spectra individually.

Regarding **claim 10**, Fisher teaches wherein the minimum overall risk is the maximum benefit (column 8, lines 8-19).

7.   Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lim in view of Fisher and in further view of Smith et al. (US 6,404,876).

Regarding claim 11, Lim and Fisher as applied to claim 1 differ from claim 11 in that it fails to disclose wherein the speech recognizer is a spoken language-understanding device.

However, Smith teaches wherein the speech recognizer is a spoken language-understanding device (column 8, lines 22-30) [The intelligent includes language matching features].

It would have been obvious to one of the ordinary skill in the art at the time the invention was made to use the speech recognizer as a spoken language-understanding device of Smith to modify the invention of Lim and Fisher.

The modification of the invention will offer the capability of the speech recognizer used as a spoken language-understanding device such as the system would promote a single universal number that would automatically directs calls to business locations.

8.   Claims 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lim in view of Fisher and in further view of Cohen (US 6,295,533).

Regarding claim 12, Lim and Fisher as applied to claim 1 differ from claim 12 in that it fails to disclose the topic identifier further comprising a stemming algorithm.

However Cohen teaches the topic identifier further comprising a stemming algorithm (column 15, lines 38-49).

It would have been obvious to one of the ordinary skill in the art at the time the invention was made to use the topic identifier further comprising a stemming algorithm of Cohen and in the invention of Lim and Fisher.

The modification of the invention will offer the capability of the topic identifier further comprising a stemming algorithm such as the system would provide with some estimate that the assumptions are correct.

Regarding claim 13, Cohen teaches wherein the stemming algorithm is Porter Stemming (column 15, lines 38-49).

Response to Arguments

9.   Applicant's arguments with respect to claims 1-15 and 21-22 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gerald Gauthier whose telephone number is (703) 305-0981. The examiner can normally be reached on 8:00 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Fan Tsang can be reached on (703) 305-4895. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

g.g.

April 29, 2004

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